

## Abstract

In order to effectively generate x-rays or EUV light, droplet targets must be available, which form a fog having an atomic density of  $> 10^{18}$  atoms/cm<sup>3</sup> while the dimension thereof ranges within potential wavelengths of laser beams, i.e. the diameter thereof is smaller than diameters known in prior art. The aim of the invention is to offer a solution for creating such droplet targets while the high density is to be created at a greater distance from the nozzle, i.e. the droplet target is to collimate better than in prior art in order to extend the service life of the nozzle. Said aim is achieved by a device at least comprising a receptacle which receives a target liquid and inside which a high pressure is generated by means of a non-reactive gas, an electromagnetic valve that is connected to the receptacle and switches in the millisecond range, and a nozzle. Said nozzle is embodied as a supersonic nozzle to which the valve is connected via an expansion channel. Heating means that are disposed around the expansion channel are configured such that the temperature is adjustable to a level at which a supersaturated vapor is formed inside the expansion channel, an insulator being arranged between the electromagnetic valve and the heating means. The inventive device allows highly dense liquid targets in the sub- $\mu$  range to be created.

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